



*Late Autumn Sky – Ammendolia Field by Cherrie Corey*

# Analysis of Needs

Protecting specific parcels, protecting and promoting agriculture and biodiversity, and improving biking and walking trails throughout Town have emerged as high priorities for residents. These needs were identified through discussions at the two community meetings and from citizen responses to the online survey administered by the Town. Information and analyses in the preceding sections support protection of the existing network of large natural areas and large agricultural areas connected by major wildlife and water-protection corridors.

## Community Voices

Concord residents strongly value the natural qualities that a mix of natural open space and a robust agricultural landscape add to the Town's character. Through the public input gained from meetings and a citizen survey, there was strong concern that economic pressure to develop open areas would negatively impact Concord's character and create spillover effects which would impact natural systems. There is strong support for both Town and individual actions to engage in multiple strategies to encourage preservation of existing open and farmed areas. However, when asked about an array of initiatives the Town might undertake, overwhelmingly citizens responded that they would prefer an agenda which afforded more ways in which people could interact with the outdoor environment, including the repurposing of existing open spaces to more intensive human uses. Concord has shown remarkable stewardship of its historic landscape, and should take a conservative approach in balancing these pressures as it moves forward.

Results from community meetings and a survey distributed to Concord residents and Town employees consistently identify widespread concern about development pressure and the need to protect the open space in Concord for ecological, recreational, and agricultural purposes. Trail access and connectivity, especially bike trails, are a top priority for residents, as well as improving access to recreational resources.

The following boxes summarize these priorities and concerns.

### Ranked concerns in order of their priority for attention, from 2013 Survey (415 respondents)

1. Excessive development (172)
2. Groundwater quantity and quality (80)
3. Loss of natural habitats (47)
4. Loss of agricultural lands (42)
5. Effects of siltation on rivers, ponds, and wetlands (33)
6. Lack of access to ponds and rivers (22)
7. Pollution from road/parking lot runoff (11)



*Fisherman by Cherrie Corey*

## A) Summary of Resource Protection Needs

Open space in an environment of benign neglect will eventually disappear as various pressures prevail in the community to derive a higher utility for human use. In this context, the habitat needs of rare and common species alike require strong voices, financial commitment and policy strategies in the Town as a counterweight to the economic reality of intensifying uses. Community members were polled for their opinions regarding the importance of open space preservation and both municipal actions and actions which can be undertaken by individuals as a means of preserving the remaining open spaces in Town.

### **Rank importance of various aspects of open space preservation, from 2013 Survey (435 respondents)**

1. Quality of Rivers, Streams and Ponds (265)
2. Quality and Quantity of Groundwater (244)
3. Open Space for Conservation/Passive Recreation (204)
4. Agricultural Land and Local Food (176)
5. Biodiversity and Wildlife Habitat (169)
6. Places of Historical Value (164)
7. Rural Character (144)
8. Open Space for Active Recreation (134)
9. Connectivity of Open Space throughout Town (103)
10. Proximity/accessibility to Village Centers (89)
11. Connectivity with Other Communities (68)

### **Rank of Town actions favored to preserve open space, from 2013 Survey (417 respondents)**

1. Promote zoning/planning changes to encourage open space conservation (173)
2. Acquire/accept conservation restrictions (152)
3. Town purchase of land (139)
4. A combination of public and private partnership funding (131)
5. Acquire easements to connect open space (117)
6. Dedicate more town lands for conservation and/or recreational use (105)
7. Dedicate more town funds to maintain existing facilities (62)

### **Rank of actions residents are willing to take to preserve open space, from 2013 Survey (415 respondents)**

1. Vote for a town supported land acquisition program (320)
2. Collaborate with other public/private conservation entities (292)
3. Increase Community Preservation Act funding (244)
4. Sell or contribute a conservation restriction on your land (68)
5. Sell your land to the town (54)
6. Gift some land to the town, state, or land trust (31)

Due in large part to the significant conservation efforts that have taken place in Concord since the 1960s, the Town has maintained a rich array of habitat types supporting extraordinary biodiversity. Previous open space plans have identified seven large natural areas. These areas remain as vital landscape blocks to protect and enhance through proper management techniques and further conservation efforts.

Additionally, studies such as the State's Biomap2 project prepared by the Natural Heritage and Endangered Species Program provide valuable resources to aid town planners and conservation groups in their efforts to maintain the health and integrity of natural areas. The Biomap2 study, issued late in 2012, provides information on species of conservation concern and identifies particular types of landscapes and habitats that merit concern. The BioMap2 report and reports for Concord and other towns within Concord's region can significantly aid local and regional planning efforts related to biodiversity.

Prioritizing parcels for Town or land conservation purchase will guide future efforts at protection. Town purchase for land conservation purposes is an effective, but very expensive, strategy for protecting key parcels of ecological or agricultural value. Additional strategies include overlay zoning districts, large-lot zoning, conservation restrictions, agricultural preservation restrictions, and transfer of development rights (TDR) (see Appendix B for discussion of TDR.)

Increased public education and outreach foster a sense of civic responsibility and personal accountability for the long-term health of these valued ecosystems.

One innovative way of encouraging residents to participate in stewardship of their unique natural resources is through Audubon International's Environmental Stewardship Program. This program provides support in developing environmental management plans to aid conservation efforts. The program engages citizens and communities in conservation, complements Town and land trust conservation efforts, and has the potential to strengthen the resiliency of the Town and the region.

## A.2 Water Resources

Situated at the center of the regional watershed, Concord is blessed with an array of rivers, streams, wetlands, ponds, and vernal pools. Some of these waters are healthy and clean, while the degraded state of others necessitates action in order to improve water quality. Specifically, both the Assabet and Sudbury Rivers,



which originate southwest of Town, require continued attention and action in order to mitigate known pollutants and invasive species. Historical industrial pollution, wastewater treatment output, as well as road and agricultural runoff all contribute negative impacts to water quality in the Sudbury-Assabet-Concord (SuAsCo) watershed. Regional vigilance and conformance to regulatory frameworks is the best support for this extensive river system. As these rivers converge to form the Concord River at the center of Town, it too will require water testing and action in order to improve and maintain water quality into the future.

## B) Summary of Community's Needs

When polled regarding their desires for future initiatives, citizens encouraged the Town to focus on its already rich resources in trail networks and to make these more accessible through trail maps and guides, but also to consider extending sidewalks and developing rail trails, which provide safe passage without direct conflict with vehicular traffic.

Citizens also opted for initiatives which would promote outdoor activities, such as gardening, farming, and choices for more open green space for athletics, both formal regulation games and informal spaces. This is consistent with results received through the Recreation Facilities Strategic Plan.

### Top ten priorities for potential town initiatives, from 2013 Survey (425 respondents)

1. Extend sidewalks/walking paths to improve walkability of Town (153)
2. Develop Bruce Freeman Rail Trail (102)
3. Update town trail map and develop a trail guidebook (50)
4. Return conservation lands to agricultural production (28)
5. Invasive species control efforts (26)
6. Develop additional community gardens (13)
7. Develop additional regulation-size playing/ballfields (13)
8. Develop trail connection from the Battle Road Trail to the Thoreau Birth House (12)
9. Improve handicap accessibility to town trails (8)
10. Develop additional informal playing fields/baseball diamonds (3)

In their spare time, some people enjoy hiking, canoeing, or tracking animals. Others are drawn to organized sports or long-distance bicycle riding. Still others find satisfaction in walking along roads or gardening or landscape painting. Concord is for-

tunate to have resources that can support a wide range of recreational interests and many programs that help people of all ages keep physically active and engaged.

Particularly from the perspective of open space, it is convenient to consider separately intensive-use recreation (includes field-based activities, playgrounds, parks, and bike trails) and nature-based (or resource-based) recreation. Yet it must be emphasized that many valuable recreational opportunities might not fit into either category because they are not associated with land resources. Art classes, walking groups, and visits to museums are a few examples. Luckily, Concord is blessed with an abundance of such offerings.

Concord has been (see *Town of Concord 1985 Open Space Plan*) and is relatively well endowed with intensive-use recreational resources (see table, page 90). As the Town assesses lands for potential playing fields, it is critical to carefully evaluate the resource protection values associated with those lands. The Open Space Framework laid out in this plan is designed in part to identify those valuable natural and agricultural areas that would be unsuitable for such activities and, conversely, to guide planners to areas where playing fields would be appropriate and easily accessed and where they would enhance the community.

The protected open space of Concord provides highly varied recreational opportunities (1992 OSRP). Outdoor recreation can include active pursuits such as hiking, canoeing or bicycle riding, or more passive activities such as wildlife viewing, photography, and quiet appreciation of the scenic corners or historic treasures in Town. For recreational activities that are resource-based, such as hiking and fishing, protection of the areas and sites of the Open Space Framework, and as identified in the action map in section 9, would meet many of these demands.

Many of Concord's special sites (see map, page 72), which include relatively unique resources with either high value to the Town or beyond the town, are also of major recreational importance. These include:

- Sightseeing areas: Minute Man National Historical Park, Sleepy Hollow Cemetery, and the Historic Districts;
- Swimming in natural water bodies: Walden Pond and White Pond;

- Boating areas: the Sudbury, Assabet, and Concord Rivers and three ponds (White, Warner's, and Walden);
- Fishing areas: the Sudbury, Assabet, and Concord rivers, five ponds, and three brooks;
- Sportsmen's club property: Musketaquid Sportsmen's Club and Concord Rod and Gun Club; and
- Golf course property: Concord Country Club and Nashawtuc Country Club.

Also local, neighborhood open space resources provide opportunities for nature-based recreation, affording easily accessible wildlife viewing, nature education, and opportunities for frequent, personal, quiet connection to the natural areas of Concord. Even the Town's three community gardens at Hugh Cargill, East Quarter, and Cousins provide residents with deep linkages to nature, and there is a strong desire among residents for more community garden plots.

For a town of its size and population, Concord provides a broad range of outdoor recreational opportunities. The focus of this plan is on town resources, though private and other public resources (from private schools, clubs and beaches to major state and federal lands) greatly enrich the recreational opportunities in Concord. Recreation programs have long been, and are, handicap accessible, and a wide range of properties, facilities and equipment, is handicap accessible (see Appendices E and F).

#### B.1.a Major Trails

Trail activities, including hiking, walking, jogging, nature study, bicycling, horseback riding, and cross-country skiing, continue to be very popular at the state, regional, and local levels. In Concord there are many ways to obtain maps and information about open space, conservation lands, and trails information, including:

- *Town of Concord Conservation Land Guide* (June 2000) and trail maps by the Trails Committee
- *Trail Guide* (2014) by the Concord Conservation Land Trust
- *Concord's Mill Brook: Flowing Through Time*, a guide to the Lower Mill Brook, by Richard T. T. Forman, prepared for the Mill Brook Task Force and the Town of Concord Natural Resources Commission (1997, 2<sup>nd</sup> ed. 1999)
- *Mill Brook Historic Tour: Glimpsing Concord's*

*History Through the Eyes of the Mill Brook* (May 2003) by the Mill Brook Task Force

- *Bay Circuit Trail Map* by the Bay Circuit Trail Alliance
- *Battle Road Trail Map* by the National Park Service
- *The Assabet River Pocket Guide* by the Organization for the Assabet River
- *MAPC Hiking and Biking Trail Map* (2012) by Metropolitan Area Planning Council

Regional paths for walking and bicycling include Minuteman Commuter Bikeway connecting Bedford, Lexington, Arlington, and Cambridge; Battle Road Trail from Concord to Lincoln and Lexington; and an informal path on a town-owned abandoned railroad bed from Concord to Bedford. The Bay Circuit Trail (for walking) connects Acton, Concord, Lincoln, and Wayland as part of a 200-mile circuit around the Boston Region. This trail goes westward from Concord Center to enter Acton south of Strawberry Hill Road, and southeastward from Concord to enter Lincoln at Walden Pond. Efforts should continue, to reduce road walking to the extent feasible. A long planned component, the Emerson-Thoreau Amble, was completed in 2013, and extends from Heywood Meadow in Concord Center through the Town Forest and Brister's Hill, culminating at Thoreau's cabin site in the Walden Pond State Reservation. Continued efforts of this type will make the Concord segment of the Bay Circuit trail a pleasant traverse of our natural spaces.

A new trail connection was developed in 2012 between Bedford and Concord through MassPort land. Further enhancement of the trail connection between Concord and Bedford through the MassPort land will provide welcome recreational opportunities for residents. Existing trails in Estabrook Woods link Concord and Carlisle. In contrast, no regional walking or bicycling trails serve the southwestern half of Concord, nor provide recreational access to the considerable natural-vegetation areas in Littleton, Boxborough, and Stow to the west.

Several proposed regional trails would greatly enhance recreational opportunities in the region. Concord residents will especially gain from completion of the 25-mile Bruce Freeman Rail Trail which will provide access to the natural land and countryside of Sudbury, Acton, and Westford. The Concord portion of this trail, connecting Acton and Sudbury, is scheduled to commence construction in 2016.

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### B.1.b Proposed New Local Trails

More work is required to complete the Town's system of trails and to increase its accessibility to all, including individuals with disabilities and the elderly. The Town should continue its efforts to build other local walking trails that have been proposed by various town committees and task forces. Seven in particular stand out.

**Assabet-Nashoba Trail:** There is an informal trail from the outlet of Warner's Pond along the Nashoba River to its confluence with the Assabet River which connects Warner's Pond to the proposed Bruce Freeman Rail Trail (BFRT). This trail should be formalized to connect to a future trail required under permits issued to Concord Park along the Assabet River and Nashoba Brook that could also allow passage over the Assabet River to CR land at 330 Baker Avenue, though this would require a crossing of the Assabet River. The pocket park at Warner's Pond, constructed in 2012, offers a lovely spot for contemplation of the pond and its environs. The Assabet-Nashoba Trail could continue to potential future trail connections from Wright Road and the MCI land discussed in more detail, below.

**Trail of the Colonial Militia:** On the 225<sup>th</sup> anniversary of the Concord Fight, in 2000, the citizens of Concord voted to designate an existing path on Town land from Monument Street to Bedford Street a "Trail of the Colonial Militia." It marks the path the Militia took from North Bridge toward Meriam's Corner in 1775. Voters urged town officials "to accommodate the approximate route of this trail in any future use of the Town-owned land".<sup>3</sup> The portion from Bedford Street to Meriam's Corner remains unfinished. There are several possible routes, including from Bedford Street to Birch Drive to Ridgeway Road to Ripley School grounds to an "ancient way" owned by the Town to Meriam's Corner.

**MCI Land off Wright Road:** Evaluate connecting the trail system on the MCI prison land to explore the environs of Nashoba Brook and Warner's Pond. With the construction of the BFRT, there is an opportunity to create a trail connection from the BFRT, through the Massachusetts Correctional Institution land along Nashoba Brook, to Wright Road.

**Landfill and Brister's Hill trails:** Concord's 2001

Town Meeting created a study group to work with interested residents and the Walden Woods Project to arrive at a permanent use of the Town's 35-acre capped landfill site. In 2002, Concord's Landfill Committee recommended that the Selectmen offer to swap the landfill site for a state-owned parcel on which the Town could continue public works functions, including yard waste recycling, mulching, and snow dumping. In 2012, the Walden Woods Project offered to purchase a Conservation Restriction on a former landfill site, allowing the continuation of municipal uses of the land and the introduction of a solar array. The Town voted at 2013 Town Meeting not to place the site under a CR. The Town also voted not to use a portion of the site as the bus parking lot for the Concord-Carlisle High School. Placing a CR on the property would facilitate the creation of a safer trail linkage of the Town Forest, the Emerson-Thoreau Amble, Bay Circuit Trail, and Brister's Hill Interpretive Site to Goose and Walden Ponds. In order to safely cross Route 2, an overpass could be constructed. The Walden Passage Feasibility study completed in 2007 identified an overpass in the vicinity of the former landfill as the most suitable location. Walking trails in the vicinity of the landfill and Brister's Hill should be limited and carefully designed to ensure safe operation of the solar array installed on the landfill in 2013 and 2014. The valuable pitch pine stand on Brister's Hill also requires protection.

**Old Mill Crossing (or Milldam Crossing):** The Town should build a footbridge over the Mill Brook at the site of, and in recognition of, the original mill built at the founding of Concord (by today's Main Streets Market & Café). This would link the visitor center and Town parking lots with Monument Square.

**Elm Brook Trail:** The Town should continue to work with the Thoreau Farm Trust to develop a trail connection from the Thoreau Birth House at 341 Virginia Road, to the Battle Road Trail, to unite the historic and literary legacies on Concord.

**Assabet Bluff Trail:** Future extensions of the Assabet River trail are recommended south of Main Street. The Town should continue to pursue easements across private parcels to create a trail from the newly constructed canoe launch at the Main Street/ Cottage Street intersection (behind the Dino's parking lot) to the Concord Riverwalk at 1657 Main Street. There are likely to be some marshy areas that might require elevated boardwalks to limit the potential impacts to wetland resource

areas.

The Town should continue to improve the newly acquired Rogers land off Harrington Avenue and establish a trail connection along the Assabet River from the Second Division Brook Conservation Land, through the Rogers Land, across the newly acquired easements over private land, through Marshall Farms and connect with existing trails at Harrington Park.

In addition, many informal neighborhood trails and paths on private land link Concord residents to the Town's open spaces. The Town should act to secure existing trails when opportunities arise, such as when subdivisions are proposed.

#### B.1.c Bikeways

Bicycling has grown enormously in popularity, both for recreation and fitness. Concord has become a mecca in eastern Massachusetts for regional riders, making cycling an economic as well as recreational driver in the community. Safe and convenient bicycling routes should be greatly expanded in Town for recreation as well as transportation. Indeed, the Town's "share the road" signs suggest the importance of roads as a major component of an effective biking network. Work on the bicycle trails in the north/south rail corridor, as well as the Route 2 crossing at Route 126 and south to the Lincoln line, were recommended by the 1995 Concord Bikeways Task Force. The Town should study and plan for bicycle use in the Concord to Bedford corridor and from Route 126 to Concord Center. The Town continues to move forward with the BFRT design, presently scheduled for construction in 2016.

#### B.1.d Regional Trails

Regional trails not only help link the communities in Concord's Region, but provide beautiful, convenient access for Concord residents to countryside and open spaces in neighboring towns.

**Bay Circuit Trail (BCT):** This 200-mile walking trail extends through 34 Massachusetts towns, from Plum Island in Newburyport to Duxbury. The Concord segment runs from the Acton line in the Annursnac Conservation Area, passes over the historic Old North Bridge, where the trail forms at Monument Street. One section continues through Concord Center and the Hapgood Wright Town Forest, reaching the Lincoln line in the Walden Pond State

Reservation. A second branch extends from Monument Street up the Reformatory Branch Trail up through Bedford. For hikers' safety, and to enhance the woodland experience, the BCT should be re-routed wherever possible off roads, such as College, Barrett's Mill, and Barnes Hill Roads, onto existing trails through the Spencer Brook Valley.

**Bruce Freeman Rail Trail (BFRT):** The old Framingham-Lowell railroad right-of-way is a valuable north-south corridor that runs intact for approximately 25 miles, from just north of Route 3 in Lowell to close to Route 9 in Framingham, with significant sections in Chelmsford, Acton, Concord, and Sudbury. The trail has been named the Bruce Freeman Rail Trail in honor of the former Chelmsford State Representative who was its first strong advocate. The trail has been completed through Chelmsford and Westford. The 3.5-mile Concord section enters from Acton just before crossing Route 2, passes close to Warner's Pond, and crosses Commonwealth Avenue, Nashoba Brook, Main Street, and the Assabet River at Concord Junction. It then skirts scenic woodlands, farmlands, wetlands, and White Pond before crossing into Sudbury. The Concord section of the trail is scheduled to begin construction in 2016.

This rail trail will provide Concord with a valuable recreational and alternative transportation resource. It will serve walkers, joggers, bicyclists, children in strollers and on tricycles, scooters, cross-country skiers, snow-shoers, equestrians, and wheelchair users alike. It will connect West Concord Center – including the MBTA commuter rail station – to the playing fields behind Sanborn Middle School, and walking trails in the Old Rifle Range. In 2004, the Selectmen approved a preliminary engineering study of the Concord section of the trail, and a local Friends group raised the required funds for the study. The study included delineating wetlands and evaluating impacts on rare species. Bridge crossings over Route 2, Nashoba Brook, and the Assabet River will be needed. In March 2003 the Concord Selectmen indicated that MassDOT should include the abandoned railroad right-of-way crossing over Route 2 (as well as the Nashoba Brook wildlife corridor under the highway) in its designs for a new rotary, and both of these recommendations have been incorporated in the Route 2 Rotary design. However, the Route 2 Rotary project has been put on hold and isn't currently included in the 20-year state Transportation Improvement Program. The



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BFRT portion of the project was segregated out to continue towards 75 percent design. Discussions of the rail trail's feasibility and attributes, including the important Nashoba Brook/Route 2 crossing and White Pond water quality and neighborhood impacts, continue in Concord. The design of this important regional recreation resource should be sensitive to the other major aspects of Concord's 2015 OSRP.

## B.2 Accessibility of Trails to Persons with Disabilities

### B.2.a Federal and state standards

The 1992 OSRP recommended that the Natural Resources Commission "work with the town's Section 504 coordinator to identify the level of effort that should go into upgrading or creating Class I and Class II trails." Since then, the Americans with Disabilities Act, or ADA, has largely replaced Section 504 of the federal Rehabilitation Act in setting the requirements for making town facilities and services accessible to persons with disabilities (*see Appendix F for ADA self-evaluation of Town's facilities and services*). The Architectural and Transportation Barriers Compliance Board ("Access Board"), the federal agency with ADA oversight, is developing proposed regulations for "Outdoor Developed Areas," including access to trails. These will be based on the "Draft Final Accessibility Guidelines for Outdoor Developed Areas" developed in 2009. The "Final Guidelines for Outdoor Developed Areas" was issued in November 2013, but these only apply to federal lands, and the regulations for state, town, and private lands may not be issued for some time. On March 15, 2011 the Department of Justice (DOJ) revised rules went into effect allowing "other power-driven mobility devices" to be used by "individuals with mobility disabilities."

### B.2.b Existing wheelchair accessible trails

Three existing trails in Concord are said to meet the Guidelines' standards for accessibility to persons with disabilities, but can easily become unusable if not maintained. Two of these are federally maintained: the Battle Road Trail (accessible except for a 200-foot section climbing onto The Ridge) in the Minuteman National Historical Park and the Dike Trail in Great Meadows National Wildlife Refuge (the ramps at the ends of bridges over two spillways are sometimes in need of repair). The other trail is the Town-maintained Chamberlin Path in Concord Center. Minor improvements will be required in the

next few years to reinforce the bridge.

Although the trails in Walden Pond State Reservation may not meet wheelchair accessibility standards, the 2013 Resource Management Plan Walden Planning Unit calls for the design and construction of a universally accessible connection between the top of the E-Ramp at Route 126 and the bathhouse and Main Beach. The Reservation makes a "beach wheelchair" available to visitors upon request, and a permanent ramp runs from this walkway down to the beach. Despite periodic regrading by the Reservation, however, at the point where the ramp meets the beach, shifting sand sometimes creates a several inch drop onto the sand. This problem might be corrected by extending the ramp a foot or more beneath the sand surface. A similar improvement may also be useful at two places where dirt trails (one leading to the site of Thoreau's cabin) meet the stone walkway.

### B.2.c Proposed trails to be made accessible for wheelchair users

So that all of Concord's residents and visitors may partake of the Town's natural resources and beauty, the Town should make several more existing or proposed trails accessible to people using wheelchairs. Some trails would be seasonally accessible. The Town should focus its effort on improving access for disabled persons on six important trails as follows (*described in Appendix E: Proposed Trails Accessible for Wheelchair Users*).

**Assabet-Nashoba Trail:** From the West Concord train station along the west side of the Assabet River and south side of Nashoba Brook to the arched footbridge; also a spur across the old railroad bridge northward on the railroad bed to Commonwealth Ave. near the access to Warner's Pond.

**Town Forest Trail:** From the Walden St. parking lot to the Fairyland Pond spillway.

**Punkatasset Trail:** From Monument St., bearing left at the gate, to the brook entering Hutchins Pond.

**Landfill and Brister's Hill trails:** Proposed trails on both sides of Route 2; routes to be selected.

**Old Mill Crossing (Milldam Crossing):** Proposed footbridge connecting visitor center and Monument Square.

### B.2.d "Assessed trails" and universally accessible trails

The Massachusetts Department of Conservation and Recreation has designated seven state trails as "Acces-

sible” (constructed for universal accessibility). In addition, it now defines a new class of “Assessed Trails,” which are “unimproved hiking trails [that] offer a more rugged experience” for persons with disabilities. Five such trails have been designated in Massachusetts. The Trails Committee developed and mapped an assessed trail in the Town Forest in 2013 and will be assessing additional trails in Punkatasset and Annursnac Conservation lands over the next few years. Both the Accessible and Assessed trails in Town should be identified as such with appropriate signage, as well as in Town maps and guides.

Some trails should also be made usable by individuals with disabilities other than mobility impairments, such as sight impairments. The Massachusetts Audubon Society has created a trail through its Broadmoor Wildlife Sanctuary in Natick that is accessible to individuals with partial or total blindness. A universally accessible trail should have an uninterrupted guide handrail running its entire length and may include interpretive signage in Braille or audiotape, as well as in standard print format.

The Town should make similar accommodations on one or more relatively level trails, such as the Chamberlin Path, the proposed Assabet-Nashoba Trail (or portions thereof), and the proposed footbridge over Mill Brook in Concord Center.

#### **B.2.e Trails committee and meshing trail and conservation objectives**

Overall, to aid the Town in trails issues and facilitate processes related to them, a Town Trails Committee reporting to Concord’s Natural Resources Commission (NRC) and coordinating with the Division of Natural Resources staff was created in 2007. Members of the committee monitor the condition of all Concord public trails, both existing and proposed, and advise the NRC on trail issues including, but not limited to: trail marking, routing or re-routing, handicap accessibility, trail blockages or deterioration, any restrictions required for trail preservation, trail maps and descriptions, and instances of improper encroachment or interference with trail use. Committee members are also developing trail guides for the Town’s trail system.

Finally, trails should be consistent with conservation objectives. Trails facilitate the movement of people for recreation, largely through natural areas. That movement when concentrated, and especially when accompanied by dogs, can have detrimental effects on natural populations of key wildlife. The diversity,

density, habitat, and movement routes of many forest species are likely to be reduced or disrupted, and should be considered when routing new trails or relocating existing ones.

#### **B.3. Field-based and Other Intensive-use Activities**

The Town of Concord provides citizens many opportunities to participate in active recreation programs at a range of facilities in town. Formal and informal playing fields host a diverse array of individual and team sports programs including soccer, baseball, softball, ultimate frisbee, and lacrosse. The Concord Recreation Department has two facilities, the Beede Swim and Fitness Center and the Hunt Recreation Center, which offer many programs for a broad range of ages. The Beede Swim and Fitness Center offers swimming classes in its four pools to its 4,054 members. There were 3,592 total fitness participants in 2012 who participated in personal training held at the Beede Center and fitness classes held at the Hunt Recreation Center and the Ripley Gym. In addition, the Hunt Recreation Center provides many summer camps and after school programs for children of all ages. In 2012, the youth basketball program alone had 435 participants. The Recreation Department continually evaluates the current trends to meet the community’s needs for active recreation.

Because demand for these types of programs and facilities are high, the Recreation Department has received \$30,000 in Community Preservation Act (CPA) funds to hire a consultant for the purpose of developing a Recreation Facility Plan, which will be a five-year strategic plan delineating the recreational needs of the Concord community.

Small informal playing fields, mainly for neighborhood use, are also a valuable recreation resource. Such areas provide additional opportunities for children who cannot participate in, or wish to have additional opportunities to, the organized teams and activities requiring regulation ball fields. In winter, informal ice-skating and hockey take place at Moses, Crosby’s and Macone Ponds, as well as the Town-sponsored rink at Emerson Field and Nashawtuc Hill is a popular sledding destination. Located within convenient walking or bicycling distance of homes, small neighborhood fields provide opportunities for spontaneous and multi-age recreation. They also reduce the need for vehicular travel and tight scheduling by families, and additionally could reduce pressure on the existing regulation ball fields. Convenient small, informal play-



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ing fields enhance neighborhoods and provide places for neighbors to meet. The Recreation Facilities Strategic Plan, completed in 2014, also identified a very high level of interest and need for neighborhood parks. Currently at 0.62 acres per thousand Concord residents, the Town should work towards achieving the Level of Service Standard of 3.5 acres/thousand residents.

New playing fields, of course, require resources for maintenance by the Concord Public Works Department. In many cases neighborhood residents should be able to help maintain small, informal neighborhood fields.

### **B.3.a Playgrounds and skate-park:**

With the recent construction of three elementary schools in Concord, the playgrounds at each of the schools were also updated. The Emerson Playground was completed in Spring 2009; the Rideout Playground was completed in Fall 2011; and the Playscape at Ripley is under construction now.

The Playscape at Ripley is being constructed in Concord's East Quarter, adjacent to Ripley School. Located next to conservation land, the new Playscape at Ripley will purposefully connect individuals of all abilities with nature, while fostering cognitive and social growth. Community groups will be able to use the green spaces for a variety of activities, while the performance circle will host outdoor performances. Hikers and nature-lovers will have access to trails, and families with strollers or seniors with limited mobility will be able to use the Playscape's reinforced textured path. There will be shady spots, ample seating, and quiet spaces.

The Concord-Carlisle Teen Alliance, the Concord Police Department, the Recreation Department, and groups of parents and youth have worked together to identify a location and fund the creation of a skate park in town. An approximately 10,000-square-foot park for skateboarding and inline skating at Concord-Carlisle Regional High School was completed in 2004. The skate park has since been removed with the new high school construction underway, and survey respondents did not rank replacing the skate park as a high priority. With the construction of the high school athletic fields, an ADA-compliant path will be developed around the athletic facilities to access the fields or stroll the grounds.

### **B.4 Water-based Outdoor Recreation**

Concord's abundance of natural water resources

allows residents and visitors alike to enjoy a variety of water-related recreational activities year-round. From swimming and kayaking to fishing and ice-skating, residents' outdoor experiences are enhanced enormously by Concord's rivers, streams and ponds. Providing an additional public access point to natural surface waters for water-based recreational activities should be evaluated. These types of activities provide exercise without the structure of organized sports and reinforce a connection with the natural world that is often elusive in our modern lives.

The tables on the following pages provide a glimpse at the recreational resources available in Town as well as a look at resident desires for improvements to these areas and facilities.

## **C) Management Needs, Potential Change of Use**

### **C.1 Land and Habitat Management**

Protected land, enjoyed every day by significant numbers of residents and visitors, remains arguably the most outstanding resource in Concord. Although users are overwhelmingly respectful of the land, with this intensive use inevitably there are impacts on trails, pollutants entering streams and ponds, habitat degradation, and inadequate protection of sensitive species. Invasions by exotic plant species are degrading habitat in many areas.

State regulations now partially protect wetlands and unbuilt areas near streams and rivers, which is especially critical in a town trisected by three rivers and numerous associated wetlands with abundant water resources (see map, page 39). Two major responsibilities of Concord's Natural Resources Division are wetlands protection and management of the Town's conservation lands. Property boundaries tend to define open space parcels and recreation spaces. In contrast, natural resources, such as water and wildlife, readily move and are distributed across many properties, both private and public.

Managing land and natural habitats is a vital aspect of ownership responsibilities. The following paragraphs provide an overview of the different approaches to management presently occurring in Town. It is fortunate that Concord has an ongoing tradition of leaders who run a relatively open town government, as well as a Concord Public Works department with a strong interest and record in environmental protection. Consequently, local boards and agencies generally communicate well and conflicts relative to open space and recreation are limited.

## Availability of Recreational Resources in Concord

Concord assesses the demand for recreational activities in a number of ways: by extrapolating from the Statewide Comprehensive Outdoor Recreation Plan (SCORP); by evaluating the level of use of existing programs, resources, and facilities; by occasionally conducting surveys; by referring to existing plans and policies; by maintaining close communication with other agencies and organizations; and by listening to comments at public meetings on issues ranging from town budgets to plans such as this.

Many initiatives identified in this OSRP meet the four goals set forth in the most recent 2012 SCORP report. To meet Goal 1 - increase the availability of all types of trails - the Town will construct the Concord portion of the Bruce Freeman Rail Trail, a paved, multi-use regional trail, and will also be assessing Town trails for use by other power driven

mobility devices, while continuing to pursue efforts that provide connectivity for trail users and wildlife alike. Goal 2 relates to increasing the availability of water-based recreation. The Town will be working with OARS to provide better visibility for the six boat launches on Town lands while also providing indoor swimming opportunities at the Beede Center and outdoor swimming pool at Emerson Field. To meet Goal 3, Concord is blessed with a plethora of recreational options in all areas of Town, including three community gardens with a fourth to be completed in 2016. The need for small neighborhood parks is also highlighted in this OSRP. As an aging community, this OSRP also meets Goal 4, to invest in racially, economically, and age diverse recreational opportunities as can be seen with creation of the Playscape at Ripley, a nature park design for all ages and abilities.

Outdoor Recreational Activity	Availability in Concord
Hiking	Trails through town-owned conservation land; state and federal land; land trust land
Hunting	Two private sportsmen's clubs; some state lands; private property with permission
Organized natural / historical / cultural and sightseeing	Six historic districts and numerous tours and staffed sites, such as Minute Man NHP, Walden Pond State Reservation, Great Meadows Refuge, Old Manse, Emerson House, Concord Museum
Picnicking	Picnic tables at Emerson and Rideout playgrounds; numerous open, grassy areas elsewhere in town
Archery / target practice	2 private sportsmen's clubs
Baseball / softball	11 baseball or softball diamonds
Soccer / lacrosse	11 multiple use soccer/lacrosse fields
Golf	2 private 18 hole courses
Tennis	10 public courts; 25 courts at 6 private clubs
Basketball	3 public outdoor courts
General playgrounds	Emerson, Rideout, Ripley, and at 3 elementary schools
Bicycling	Narrow paved pathways along roadsides have limited use; off-road bicycling on Battle Road Trail; Concord is a popular rendezvous for individual cyclists and regional bicycle clubs, who use area roads
Horseback riding	4 major areas all on private lands; Town conservation land, CLCT land
Ice skating	10 ponds with public access and extensive riverine areas plus 2 public seasonal Rideout and Emerson Field
Skiing (cross-country)	See hiking above
Boating	4 public access points on rivers and 3 on ponds; 2 private launch areas, including the popular boat/canoe rental business at the South Bridge Boathouse
Fishing	Same rivers and ponds as above; 3 ponds on sportsmen's club property; 5 brooks with limited public access
Swimming (pools)	2 public facilities: Beede Swim and Fitness Center (4 pools), Emerson Playground (1 pool); 3 private clubs;
Swimming (freshwater)	2 public areas (Walden Pond); 4 private associations (Nashawtuc Country Club, Concord Country Club, Heritage Swim and Tennis, White Pond Associates Beach)
Running / Walking	¼ mile track at Emerson Field

Source: Concord Recreation Department

## Resident-identified Recreational Facility Needs

When asked to indicate the top five recreational facilities they felt are needed or should be expanded, residents selected bike paths, hiking and walking trails, and conservation areas as their top three areas of interest. Additional areas where residents expressed moderate levels of interest are neighborhood parks, swimming areas, children play areas, and dog parks.

In a separate question asking about the adequacy of existing resources, the only resource deemed inadequate were biking resources. With the revised Dog Bylaw proposed for 2014 Town Meeting (after the conductance of this survey), the need for a formal dog park was raised as a community desire and requires further evaluation.

<b>Recreational Resource (416 Respondents)</b>	<b>Ranked #1</b>	<b>Ranked #2</b>	<b>Ranked #3</b>	<b>Total</b>
Bike Paths	127	64	39	<b>230</b>
Hiking and Walking Trails	72	88	54	<b>214</b>
Conservation Areas	66	46	32	<b>144</b>
Dog Park	20	22	21	<b>63</b>
Swimming Areas	17	23	21	<b>61</b>
Children Play Areas	16	29	18	<b>63</b>
Indoor Recreational Facilities	16	12	21	<b>49</b>
Neighborhood Parks	13	20	38	<b>71</b>
Tennis Courts	11	10	8	<b>29</b>
Baseball Fields	9	4	4	<b>17</b>
Outdoor Benches	6	12	18	<b>36</b>
Soccer Fields	6	0	2	<b>8</b>
Summer Recreational Programs	5	4	7	<b>16</b>
Family Picnic Areas	4	8	13	<b>25</b>
Ice Skating Rinks	4	6	16	<b>26</b>
Overnight Camping	4	4	5	<b>13</b>
Public Boat Access/ Ramps	4	7	16	<b>27</b>
Bridle Paths	3	4	6	<b>13</b>
Fishing Access	2	8	13	<b>23</b>
Hunting Areas	2	3	5	<b>10</b>
Softball Fields	2	4	2	<b>8</b>
Basketball Courts	1	8	5	<b>14</b>
Sledding Areas	1	6	6	<b>13</b>
Skateboard Park	0	3	3	<b>6</b>

Source: 2013 Online Survey administered by the Division of Natural Resources



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## C.2 Town Conservation Land Management

Land acquired under the provisions of Massachusetts General Laws, Chapter 40, Section 8C is deemed conservation land and permanently protected from development. Conservation land is granted a special status to be maintained in its natural condition in perpetuity and is under the care and control of the local Conservation Commission. In the Town of Concord, the Natural Resources Commission (NRC) is the Conservation Commission.

Town lands acquired for conservation and open space purposes since 1965 include over 1,300 acres of varied habitats, including woodlands, meadows, steep hills, agricultural fields, drumlins, freshwater ponds and free-running streams. Town conservation lands include Annursnac, Old Rifle Range, Punkatasset, Old Calf Pasture, Mattison Field, Town Forest, and many important small areas (see Publicly Owned Property Map). Guidance and oversight of management on Town conservation land is the responsibility of the NRC. Management of Town conservation land is highly diverse, and almost always arises through collaborative endeavors. The Town is very fortunate to employ the summer Conservation Crew, reporting to Division of Natural Resources staff, which helps maintain trails and fields, manage exotic invasive terrestrial and aquatic species, maintain and erect trail signs, mow conservation fields, and maintain foot bridges, among other activities.

Volunteers, including the Heywood Meadow Stewardship Committee, Trails Committee, and Mill Brook Task Force, provide stewardship of conservation lands. These NRC subcommittees conduct field days and participate in land management undertakings, including engaging consultants to develop master plans, implementing stream clean ups, and monitoring catch-basins in the watershed.

Warner's Pond is a valuable water asset under the care and control of the NRC. The Division of Natural Resources had a Watershed Management Plan developed in 2012 to determine appropriate management techniques to improve the health of Warner's Pond, which is suffering from severe degradation and is slowly filling in. The Town will be pursuing funding for limited dredging to expand deeper water habitats in targeted areas of the pond to remove accumulated sediments and enhance water-based recreation. Hand harvesting of the aquatic invasive species continues under the efforts of the Division of Natural Resources Conservation Crew.

Likewise, a significant cooperative effort in Fairhaven Bay and the Sudbury River has been undertaken since the late 1990s to remove the invasive water chestnut. The Concord Land Conservation Trust and the Town of Lincoln worked closely with Concord's Natural Resources Division in this effort, made possible by the loan of an aquatic weed harvester from the U.S. Fish and Wildlife Service. For the last two years, only hand harvesting has been necessary, a testament to the previous several years of concerted efforts to remove this noxious plant.

In many instances staffing of management activities is done in conjunction with Concord's Department of Public Works, notably its Park and Tree Division. Annual activities regularly undertaken with the Park and Tree Division includes field mowing, invasive species management, trail maintenance, and maintenance of water-related structures.

While Concord's Natural Resources Division is fortunate to have such effective partners for conservation land management, the responsibilities and challenges often overwhelm the available resources. In addition, issues involving beaver, deer, rare species, hunting, dogs, grassland birds, trails, ice-skating, fire, parties, and more demand attention. Funds allocated for land and habitat management should be consistent with the amount spent on a per-acre basis by other conservation organizations, such as land trusts and government agencies.

Sufficient operating funds and staff time must be devoted to the management of town-owned conservation land. Having acquired land for conservation, Concord has a responsibility to provide thoughtful stewardship for each parcel, determined by inventory and delineation of each property with a management plan in place to protect its values and enhance and define the visitor experience. Proper signs, parking, and trail markers should be installed where appropriate to make our public lands accessible to all. Proper management of Town conservation land will help to build a constituency of thoughtful stewards and advocates for our land long into the future.

### **Municipal, State, Federal and Private Conservation Land Management**

Management of municipal lands (in contrast to conservation lands) is accomplished principally by the Concord Public Works (CPW) Park and Tree Division. CPW cares for all of Concord's public streets and ways, including maintenance of drainage facilities. It also cares for cemeteries and Town recreation lands such as Emerson Field and Playground.

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Town lands also include land under the care and control of the Water and Sewer Division of CPW. All town well sites fall within this category. Parcels that have been acquired and designated as well sites maintain special status and are principally preserved for water supply purposes. Water supply regulations require land to be maintained in an undeveloped, natural condition. For instance, uses allowed on conservation lands, including agriculture and grazing of livestock, are prohibited on Zone 1 water supply lands.

Concord has considerable land managed by federal and state agencies, each with different objectives and management priorities. Minute Man National Historical Park is managed by the U.S. National Park Service to preserve and protect a national historical treasure, to educate visitors, and to provide appropriate recreation in a historic landscape. Great Meadows National Wildlife Refuge is managed by the U.S. Fish and Wildlife Service primarily for protection of wildlife habitat, especially for migrating water birds, and passive recreation related to wildlife. Walden Pond State Reservation is managed by the Massachusetts Department of Conservation and Recreation primarily for protection of the pond and historic landscape, as well as passive recreation related to these resources. MassPort manages Hanscom Field primarily for safe aircraft operations, which includes vegetation management and associated activities. The Massachusetts Correctional Institution and Northeastern Correctional Center are managed by the Department of Corrections primarily as a medium-security prison and a detention center, and include a considerable amount of farmland and other open land. MassDOT manages slivers of land adjacent to roads for present or potential transportation purposes.

Other than the Town, the largest landholder in Concord is the Concord Land Conservation Trust (CLCT). This non-profit conservation organization has been a key catalyst for land conservation in town since its establishment in 1959. CLCT employs a part-time land manager to manage its land holdings, and a part-time office manager to oversee office operations. Recent activities include deer management, water chestnut removal in Fairhaven Bay, and long-term mowing of fields to maintain valuable field habitat. Field edges are maintained, the spread of invasive species contained, trails mowed, and brush cleared. CLCT manages its lands both to preserve natural values and to offer opportunity for public access and enjoyment of its land

holdings.

Sudbury Valley Trustees (SVT) is a regional land trust that conserves land and protects wildlife habitat in the Concord, Assabet, and Sudbury River basin for the benefit of present and future generations. SVT partners with towns and local land trusts on land protection and stewardship projects throughout the 36-town watershed service area. In Concord, SVT assisted with protection of the Concord prison farm fields in a partnership with the Department of Corrections, the Town, and CLCT. In addition, SVT participated in the Wildlife Passages Task Force in order to monitor the use of underpasses beneath Route 2 by local wildlife.

SVT owns the Dugan Kames conservation land (27 acres) and a portion of Gowings Swamp (7 acres). SVT also holds a CR at Gowings Swamp (one acre) and at the Soutter Field and Bigelow Woods (79 acres). SVT is also collaborating with the Concord Children's Center (CCC) on the nature Playscape at Ripley. The Town will continue to collaborate with SVT, CLCT, and CCC on access, trails, and management of the Gowings Swamp natural area.

## **D) Land Policies, Regulations, Protection Mechanisms and Planning**

Given the high cost of protecting open space through purchase, as well as the Town's tradition of proactive land use planning and regulation, it is appropriate and fair for the Town to use available regulatory and legal tools to protect open space. Most of these are well-developed and understood programs such as the Zoning Bylaw and Planning Regulations. Others are less well known or have changed since the *2004 Open Space Plan*. All offer interesting opportunities to accomplish the Town's goals.

### **D.1 Regulatory, Legal, and Funding Tools Available**

**D.1.a. The State Wetlands Act** continues to be an effective tool for protecting critical habitat in Concord, where roughly 20 percent of the Town is classified as wetlands under the jurisdiction of this Act. Recent changes to the Wetlands Protection Act presently being reviewed by the State would loosen oversight, placing more importance on Concord's Wetlands Bylaw. The volume and intensity of cases handled by the NRC in recent years testifies to the importance of this program in maintaining open space in Town. The addition of the Rivers Protection Act to the Wetlands Act in 1997 was a milestone. It created a 200-foot corridor around all perennial rivers and

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streams, which is largely protected as open space, subject to various exceptions. In Concord's system of waterways (see map, page 39) this 200-foot corridor protects high value habitat.

**D.1.b A Wetlands Bylaw** was adopted by Town Meeting in 2009 "to protect the town's wetlands, water resources, flood-prone areas, and adjoining upland areas including three major rivers, the Assabet, Sudbury, and Concord and their tributaries by prior review and regulation of activities deemed by the Concord Natural Resources Commission likely to have a significant or cumulative effect on resource area value." Local policy includes a fifty-foot No Build Zone around wetlands, established in 2004. The Wetlands Bylaw approved in 2009 and amended in 2013, with Regulations issued in 2010, provide still further protection of areas close to wetlands by establishing a 25-foot No Disturb Zone, protecting critical habitat within 100 feet of certified vernal pools, and providing the Town the capacity to fine non-compliant or repeat violators of wetlands laws.

**D.1.c The Community Preservation Act (CPA)** was passed in 2001 by the state. Cities and towns may elect to join the program and set aside municipal funds for open space, historical preservation, and affordable housing, by means of an increase of up to 3 percent in local real estate taxes. The CPA was passed by 2004 Town Meeting at the 1.5 percent level. The revenue for Concord has been substantial – an average of \$1,328,552 per year. This dedicated funding stream has made acquisition and management of open space far more flexible and dependable, funding over \$4,000,000 of open space and recreation projects over the past eight years. Because of the success of this program in protecting resources, the Town should consider raising the level to the maximum (3.0 percent) so that there are more funds available to protect more resources. CPA funds should be focused on major projects, such as helping to protect core parcels of the Town's large natural and agricultural areas, and/or restoration of these areas to better reflect the values for which the land was acquired.

**D.1.d Zoning Bylaw** changes have significant potential for open space protection. A number of development projects have gone forward in recent years that relied on changes in the Town's zoning requirements and provided for additional open space in exchange. The Town should continue to encourage the creative negotiation of such projects. They

are often the most effective and sensible way to protect open space. In 2010, the Zoning Bylaw was amended to require that for Planned Residential Developments (PRDs) half of the required 25% protected open space must consist of upland. The Town should expand this requirement to other forms of development. The Town should continue efforts to develop affordable housing using the cluster approach. The Town should continue its open-minded and flexible approach to these projects; some may be a wise use of land and others may not. Because it is difficult to write general rules in this area, a case-by-case approach is necessary. The Town should continue to encourage the formation of informal task forces comprised of land use staff and Town board members to consider such requested zoning change early on in the permitting process, so that projects that might protect open land by allowing for denser development are given a thoughtful and speedy resolution. A recent example of this type of group is the Mill Brook Tarry Task Force.

Additionally, Agricultural District Overlays have been proposed and should be adopted as a strategy for protecting agricultural land in town. Transfer of Development Rights is another zoning strategy that should be explored as an option for protecting agricultural land and encouraging development within one half mile of train stations (See Appendix B for full discussion of TDR).

**D.1.e New Conservation Restrictions.** The Town should review the lands it holds as open space to determine where additional conservation restrictions (CRs) might be adopted for permanent protection. While the Town may want to keep its options open at most sites, there are others where some degree of protection may make sense. The identification of a new category of town lands (short of a CR) may be desirable for areas currently managed by the NRC, but which are also set aside for the Town's long term potential needs for public facilities, housing, and other compatible uses.

**D.1.f Conservation Restrictions in Hazardous Waste Clean-up Programs.** Conservation restrictions are frequently used to limit development on land being cleaned of hazardous waste contamination. These restrictions can be of significant open space value. The Board of Selectmen and NRC, together with other citizen groups interested in such sites, should take advantage of any opportunity to develop such CRs so as to preserve open space. The Starlet clean-up site and W.R. Grace property are good examples.



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#### **D.1.g Review of Existing Conservation Restrictions.**

In addition, older CRs already in place (Appendix G) should be reviewed by the NRC and other land trusts holding CRs in Concord, with the object of discussing with current landowners whether they would be willing to update their restrictions to more closely match the terms, conditions, and duration of recent restrictions.

**D.1.h Joint Land Acquisition.** The Town should continue to partner with land trusts, government agencies, and individuals to acquire highest and high priority open-space land, maximizing any government funds that can be used for this purpose. The Town has already participated in several such successful joint projects such as the Hubbard Brook Farm Field on Sudbury Road in 2008, and the Rogers Land off Harrington Road in 2011.

**D.1.i Vernal Pool Certification.** In conjunction with other groups and individuals, the NRC should sponsor the certification of the remaining appropriate potential vernal pools in Concord identified by the Natural Heritage and Endangered Species Program. While 53 pools have already been certified, at least a few of the remaining ones (see Plant and Wildlife Habitat Map) may qualify and, if certified, would significantly increase protection for the open space on which they are located.

**D.1.j Bond Issue.** For protection of the few remaining highest-priority large natural areas, the Town should consider a bond issue along with other financial considerations. This financing tool was successfully used in the conservation of Mattison Field in 1998.

#### **D.2. Use of this Plan in Community Decision-making**

Water, wildlife, recreation, and open space, the heart of this Open Space and Recreation Plan, are compelling issues that emerge in decisions facing the Town and the community. A history of leadership in this area dates to 1928 when Concord became one of the first communities in the nation to pass a zoning bylaw, and later to establish the first Department of Natural Resources in the state. Town leaders and Concord residents alike take these goals seriously.

Too often, however, the Town's open space and recreation goals are considered only after a decision-making process is well along. Incorporating the goals addressed in Concord's Open Space and Recreation Plan as a normal or required operation early

in decision-making would increase efficiency for all parties involved. More importantly, it would help establish a trajectory that directs actions toward shared open space objectives.

Town and community leaders can doubtless develop effective ways to use the Open Space and Recreation Plan. One promising approach would be to revise the Town's zoning map (see Section 3) based in part on the Open Space Framework (see Section 2) to better protect the Town's large natural and agricultural areas, plus the major water-protection and wildlife corridors. Another approach would use the Open Space Framework as an important required overlay and guide in evaluating development proposals.

Equally important, all Town boards and committees that deal with open space issues need to be familiar with the findings and recommendations of the Town's Open Space and Recreation Plan, as well as the thoughts of interested persons in the community. To accomplish this, one Selectmen and one member of the other relevant boards or committees should be designated to be knowledgeable about open space issues and opportunities, and to advise their respective entities accordingly. These individuals should meet from time to time, especially when major open-space issues arise. Furthermore, the NRC, perhaps jointly with the Board of Selectmen, should sponsor an "Open Space Night" each fall, so that interested residents could provide useful discussion on open space issues and opportunities, as well as potential articles for Town Meeting.

### **E) Climate Change**

Future climate change scenarios posit varying levels of impact in the coming years that may undoubtedly affect natural systems and their processes if, collectively, we do not take actions to create a sustainable environment. Both mitigation and adaptation are important components of planning for these issues. By taking land management steps to promote the health of our soils and maintain and restore natural ecosystems, the emphasis and associated expenses needed for mitigation and adaptation to climate change can be reduced. The two tables on the next page present the implications of climate change on open space, recreation, and ecological systems in Concord. Potential issues for the Town and its residents are defined and possible responses offered.

## Potential Impacts of Climate Change on Recreation and Open Space

Climate Change	Recreational Impact	Adaptation or Mitigation
More frequent floods	Areas near rivers will be periodically inaccessible	Focus development outside of flood prone areas
More frequent droughts	Lower rivers and pond levels could diminish boating and drinking water supplies	Strengthen active water conservation efforts now, e.g., encourage shift from large lawns to xeriscaping
Increased incidence of vector-borne disease	Limited times outdoors when mosquitoes are active	<i>Adaptation:</i> Increased use of indoor recreation centers <i>Mitigation:</i> Reduce town's emissions, increase use of public transit, strengthen infrastructure for cyclists and pedestrians
More poor air quality days	Limited time outdoors on poor air quality days	<i>Mitigation:</i> Reduce town's emissions, increase use of public transit, strengthen infrastructure for cyclists and pedestrians
Increased temperature	Limited recreation time outdoors in hot weather	Provide indoor recreation space, lighting for recreation after dark when it is cooler

## Potential Impacts of Climate Change on Plant and Animal Species

Climate Change	Recreational Impact	Adaptation or Mitigation
Warmer waters	Loss of cold water habitats that support cold-adapted species	Maintain and expand riparian buffer zones to shade streams; remove dams to allow species migration
More frequent droughts	Drying out of wetlands leads to habitat loss and infestation of non-native plant species	Allocate more water to wetland hydrology, increase attention to watershed protection, more vigorous invasive controls
Increased temperatures	Increase in insect-borne disease among plant communities	Promote resilience by managing age structure of forest stands to favor more young vigorous trees
Increased temperatures	Shift in plant and animal species due to changing ecosystem	Maintain strong open space protection practices for ecosystem resiliency
<i>Some information in chart from Department of Fish and Wildlife.</i>		